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COMMONWEALTH OF AUSTRALIA

Patents Act 1952

PATENT OFFICE

60

700/001
Form 1
Edition 9



APPLICATION FOR A STANDARD PATENT OR A STANDARD PATENT OF ADDITION

Insert full
name(s) of
applicant(s)

(11) We A.D.F. NOMINEES PTY. LTD.,

Insert address(es)
of applicant(s)

of Lot 3, Alexander Drive, Malaga, in the State of Western Australia,
Commonwealth of Australia.

Insert title
of invention

(15) I hereby apply for the grant of a standard patent patent of addition for an invention entitled

(Check appropriate
box)

"SWIMMING POOL WARNING DEVICE"

which is described in the accompanying provisional complete specification.

Insert name of
actual inventor or
inventors

(17) The actual inventor of the said invention is/

ANTHONY JOHN WEBB

Insert address
for service of
notices in
Australia

(18) My address for service is C/- WRAY & ASSOCIATES, Primary Industry
House, 239 Adelaide Terrace, Perth,
Western Australia, 6000 Attorney Code WR

for Convention
cases only

THESE SECTIONS ARE ONLY TO BE COMPLETED WHERE APPLICABLE

(ONLY TO BE USED IN THE CASE OF A CONVENTION APPLICATION)

Details of basic application(s) –

(31) Number of basic application

(33) Name of Convention country in which basic application was filed

ISO Code

(32) Date of basic application

for Divisional
applications only

(ONLY TO BE USED IN THE CASE OF A FURTHER APPLICATION MADE BY VIRTUE OF SECTION 51)

(62) Number of original application

Person by whom made

for Patents of
addition only

(ONLY TO BE USED IN THE CASE OF AN APPLICATION FOR A PATENT OF ADDITION)

I request that the patent may be granted as a patent of addition to the patent applied for on

(61) Application No. Patent No.

in the name of

I request that the term of the patent of addition be the same as that for the main invention or so much of the term of the patent for the main invention as is unexpired

Insert day, month
and year form
signature

Dated this THIRTYFIRST

day of

AUGUST 19 87

A.D.F. NOMINEES PTY. LTD.,
By its Patent Attorney,

Signature of
representative
or Australian
attorney

TO

THE COMMISSIONER OF PATENTS

This form must be accompanied by either a provisional specification (Form 9 and true copy) or by a complete specification (Form 10 and true copy).

AUSTRALIA
Patents Act 1952

DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT

In support of the Application made by A.D.F. NOMINEES PTY. LTD. for a patent for an invention entitled "Swimming Pool Warning Device".

I, Frank Kennedy, of Lot 3, Alexander Drive, Malaga, in the State of Western Australia, Commonwealth of Australia, do solemnly and sincerely declare as follows:-

1. I am authorized by A.D.F. NOMINEES PTY. LTD., the applicant for the patent to make this declaration on its behalf.
2. Anthony John Webb, of 20 Hubbard Drive, Padbury, in the State of Western Australia, Commonwealth of Australia, is the actual inventor of the invention and the facts upon which the applicant is entitled to make the application are as follows:-

The Applicant is the Assignee from the Actual Inventor,
ANTHONY JOHN WEBB.

Declared at...Perth....this...31st...day of...August....1987.

TO: THE COMMISSIONER OF PATENTS.

.....*Frank Kennedy*.....
(Signature of Declarant)

FRANK KENNEDY

LODGED AT SUB-OFFICE

- 3 SEP 1987
Perth

(12) PATENT ABSTRACT (11) Document No. AU-A-21727/88
(19) AUSTRALIAN PATENT OFFICE

(54) Title
SWIMMING POOL WARNING DEVICE

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(60) Related to Provisional(s) : **PI4082**

(71) Applicant(s)
A.D.F. NOMINEES PTY. LTD.

(72) Inventor(s)
ANTHONY JOHN WEBB

(74) Attorney or Agent
WRAY & ASSOCIATES

(57) Claim

1. A warning device comprising a first means for detecting the presence of a person in the vicinity of a body of water, and a second means for detecting disturbances in the body of water and for providing a warning signal in response thereto but only after said first means has detected the presence of a person in the vicinity of the body of water.

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COMPLETE SPECIFICATION
(Original)

FOR OFFICE USE

Application Number: PI4082 Class Int. Class
Lodged: 31 August, 1987

Complete Specification - Lodged:
Accepted:
Published:

Priority:

Related Art:

TO BE COMPLETED BY APPLICANT

Name of Applicant:

A.D.F. NOMINEES PTY. LTD.

Address of Applicant:

Lot 3, Alexander Drive, Malaga, in
the State of Western Australia,
Commonwealth of Australia.

Actual Inventor:

ANTHONY JOHN WEBB

P000526 31/08/88
Address for Service:-

C/- Wray & Associates
Primary Industry House
239 Adelaide Terrace
Perth
Western Australia 6000.

Complete Specification for the invention entitled:

"Swimming Pool Warning Device"

The following statement is a full description of this
invention, including the best method of performing it known
to me:-

THIS INVENTION relates to a warning device for generating a warning signal upon unauthorised entry into a body of water.

The invention has been devised particularly, although not solely, as a warning device for use with a swimming pool to provide a warning in the event of unauthorised entry into a swimming pool such as when a small child or other person who does not have competent swimming abilities, falls or otherwise enters the swimming pool.

10 There have been numerous proposals concerning warning devices which are adapted to generate a warning signal when a person (particularly a child) falls or otherwise enters a swimming pool without supervision. Many proposed warning devices are in the form of proximity detectors which respond to a person entering a prescribed area surrounding the swimming pool. Such proximity devices have not proved altogether satisfactory owing to the fact that they are actuated when a person enters the prescribed area notwithstanding that the person may subsequently leave the area without entering the swimming pool. Other proposed warning devices are arranged to detect disturbances in water in a swimming pool arising from a person entering the water. A deficiency of warning devices which detect water disturbances is that such devices are susceptible to erroneous operation when water disturbances are generated by other influences such as strong winds or objects being thrown into the water. If the sensitivity of the detecting device is reduced so as not to respond to such influences, there is some likelihood that the detector may be 20 ineffectual as it may not necessarily respond to water disturbances arising from a very small child entering the water.

30

The present invention seeks to overcome the above mentioned deficiencies of existing warning devices by providing a warning device which is responsive to a disturbance in a body of water but only after a person has been detected in the vicinity of the body of water.

Accordingly, the invention in one form resides in a warning device comprising a first means for detecting the presence of a person in the vicinity of a body of water, and a second means for detecting disturbances in the body of water and for providing a warning signal in response thereto but only after said first means has detected the presence of a person in the vicinity of the body of water.

With this arrangement, said second means will not produce a warning signal if the water is disturbed by some other influence (such as strong winds) which have not first been detected by the first detecting means.

The first detecting means may be of any suitable form such as a microwave movement detector, a passive infrared detector, a photoelectric beam, a magnetic read switch, a low pressure air switch.

The second detecting means may comprise a device for detecting wave motion in the body of water. The device may comprise an electrical circuit including two probes which are so arranged that the circuit between the probes is completed when both probes are simultaneously in contact with water as a result of wave motion in the body of water. Preferably, one probe is arranged so as to be continuously immersed in the body of water and the other is positioned so as to be spaced above the water level when there is no significant wave motion in the body of water. The second probe is suitably spaced above the water level such that it is contacted by waves produced within

the body of water when there is significant wave motion within the water (such as that wave motion generated when a person falls into the body of water).

Preferably, the two probes are mounted on a support which permits positional adjustment of the two probes so as to accommodate changes in the water level within the body of water.

10 The invention will be better understood by reference to the following description of one specific embodiment thereof as shown in the accompanying drawings in which:-

Figure 1 is a block diagram of a warning device according to the embodiment;

Figure 2 is a schematic view of part of a second detecting means for detecting water disturbances in a body of water; and

Figure 3 is a schematic view of a track for adjustably supporting the part illustrated in Figure 2.

20 The embodiment shown in the drawings is directed to a warning device for detecting unauthorised entry of persons into a swimming pool.

The detecting device comprises a first detecting means 10 for detecting the presence of a person in the vicinity of the swimming pool. The swimming pool may, for example, be bounded by a fence provided with an accessway through which a person may enter to gain access to the swimming pool and the first detecting means may be arranged to detect movement of a person through that accessway. In this embodiment, the first detecting means is in the form of a photoelectric beam, but it may be of any other construction such as a microwave movement detector, a

passive infra red detector, magnetic read switch, or low pressure air switch.

The first detecting means is arranged to generate a signal in response to the presence of a person in the vicinity of the swimming pool, the signal being applied to an electrical circuit illustrated in block diagram form in Figure 1 of the drawings, operation of which will be described later.

10 The swimming pool warning device further comprises a second detecting means for detecting disturbances in the body of water. The second detecting means 11 includes a pair of electrical probes 12 and 13. The two probes comprise a first probe 12 which is positioned so as to be continuously immersed within water in the swimming pool and a second probe 13 (being a detection probe) which is shorter than the first probe and which is positioned above the normal water level within the pool when there are no significant disturbances within the pool. The spacing of the second probe 13 above the water level is, however, 20 arranged so that the probe will be contacted by waves generated in the body of water when the water is disturbed as a result of a person falling into the swimming pool. When both probes are immersed in the water, an electrical conductivity path is provided between the probes by the water.

30 A third probe 14 is also provided and the three probes are mounted on a body 15 which is adjustably positioned in a track 16 (as shown in Figure 3) so that the position of the probes relative to the water level can be selectively varied according to changes in the water level. The third probe 14 is longer than the second probe 13 while being shorter than the first probe 12. The probe 14 is intended to be immersed in the pool water and co-operates with the

first probe 12 in an electrical circuit which is arranged to actuate the alarm in the event of the water level falls to such an extent that the probe 14 is no longer in contact with the water. This is a safety measure as it provides the pool owner with an indication of the drop in water level before the level drops so much that the first probe is no longer in contact with the water. If the water level were to drop to such an extent that probe 1 was out of contact with the pool water, the warning device would 10 be inoperative.

The warning device also incorporates an alarm including buzzer 37 or other alarm device which is actuated when the water level rises about a predetermined maximum level. The maximum water level is determined by the relative position of the second probe 13 and the buzzer 37 is actuated when the three probes are immersed in water.

Operation of the warning device will now be described. The track 16 with body 15 located therein, is mounted on a wall of the swimming pool with the first and third probes located below the water level and the second probe 13 located above the water level. When a child or other person passes through the accessway into the prescribed vicinity of the swimming pool, the first detecting means 10 detects the presence of such person and produces an electrical signal in response thereto.

The signal so produced is applied to first flip-flop 19 which toggles and goes low to initiate second flip-flop 23. Toggling of first flip-flop 19 also operates a switch which initiates operation of timer 27. The time runs for a predetermined period of time, for instance two minutes. If 30 there is no disturbance created in the pool water within said period of time, a reset pulse is sent to the two

flip-flops 19 and 23. If, on the other hand, a person does enter the pool generated within the specified time, wave motion generated within the water creates an electrical path between the first and second probes 12 and 13 respectively. The electrical signal generated by creation of the electrical path between the two probes causes operation of the second flip-flop 23 which goes low thereby initiating three events. First, relay 29 is turned on so as to stop the reset pulse for the flip-flops. 10 Secondly, a visual alarm device (such as a strobe light) is activated. Thirdly, a timer 31 is activated. The timer 31 turns on switch 33 so as to activate an audible alarm 35 for the period determined by the timer. At the end of that period of time, the switch 33 is turned off so as to terminate the audible alarm. However, the visual alarm remains operative until such time as the system is reset by the pool owner. This feature ensures the warning device has operated even though the owner may not have been present to hear the audible alarm.

THE CLAIMS defining the invention are as follows:-

1. A warning device comprising a first means for detecting the presence of a person in the vicinity of a body of water, and a second means for detecting disturbances in the body of water and for providing a warning signal in response thereto but only after said first means has detected the presence of a person in the vicinity of the body of water.
2. A warning device according to claim 1 wherein the first detecting means is selected from a group comprising a microwave movement detector, a passive infrared detector, a photoelectric beam, a magnetic read switch and a low pressure air switch.
3. A warning device according to claim 1 or 2 wherein the second detecting means comprises a device for detecting wave motion in the body of water.
4. A warning device according to claim 3 wherein said device for detecting motion comprises an electrical circuit including two probes arranged such that the circuit between the probes is completed when both probes are simultaneously in contact with water as a result of wave motion in the body of water.
5. A warning device according to claim 4 wherein one of said probes is intended in use to be continuously immersed in the body of water and the other is intended in use to be spaced above the water level when there is no significant wave motion in the body of water.
6. A warning device according to claim 4 or 5 wherein the two probes are mounted on a support which permits positional adjustment of the two probes so as to

accommodate changes in the water level within the body of water.

7. A warning device according to any one of the preceding claims further comprising means to provide an alarm signal in the event of the level of the body of water falling below a prescribed minimum level.

8. A warning device according to claim 7 wherein said means includes a third probe having a length intermediate the lengths of said two probes.

9. A warning device according to any one of the preceding claims wherein the device further comprises means to provide an alarm signal in the event of the water level rising above a prescribed maximum level.

10. A warning device substantially as herein described with reference to the accompanying drawings.

DATED this thirty-first day of August, 1988.

A.D.F. NOMINEES PTY. LTD.
Applicant.

WRAY & ASSOCIATES,
Perth, Western Australia,
Patent Attorneys for the Applicant.

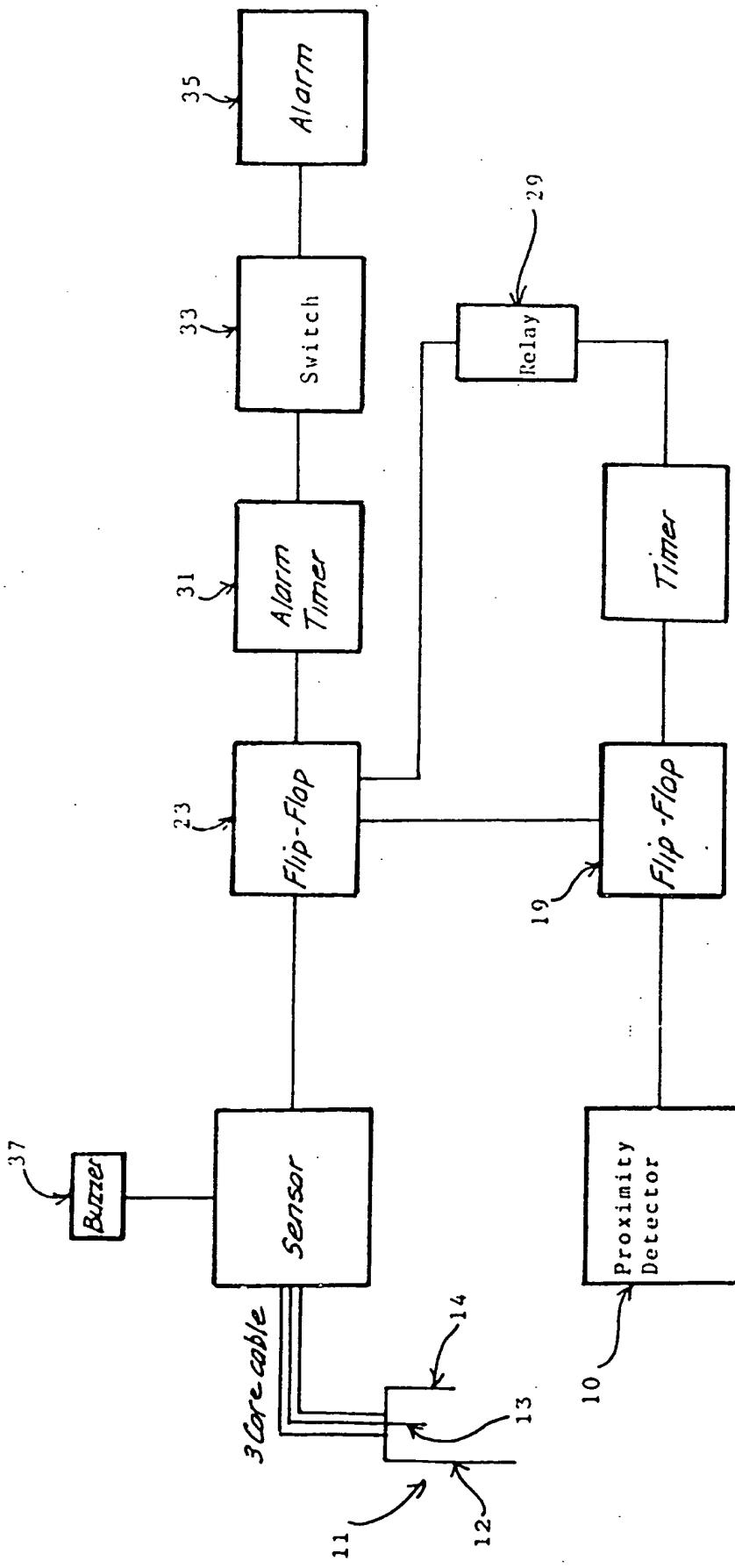


Fig. 1

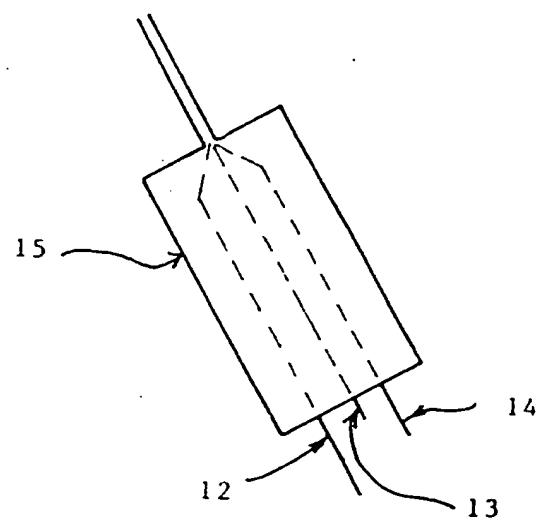


Fig. 2.

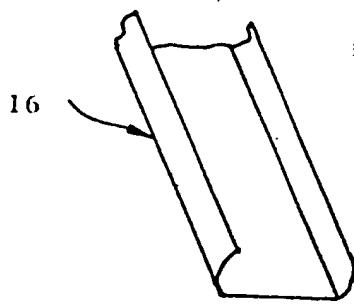


Fig. 3.